

II. RESPONSE TO OFFICE ACTION

The Office Action rejected Claims 1-6, 16-22 and 26-31 and objected to claims 7-15, 23-25 and 32. Reconsideration of the claims in light of the above amendment and the following remarks is respectfully requested. The Examiner's comments from the Office Action are reprinted below in 10-point bold type and are followed by Assignee's remarks.

A. Objection to Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the phase separator (claim 15) must be shown or the feature(s) cancelled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be cancelled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawing for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The Examiner objected to the drawings under 37 C.F.R. § 1.83(a). Specifically, the Examiner objected that the phase separator of claim 15 was not shown in the drawings. Original claim 15 has been cancelled and as such, the Applicants request that the Examiner reconsider and withdraw the objection of the drawings.

B. Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date

of application for patent in the United States.

Claims 1-6, 16-21, and 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Gianelloni, Jr. (3194325).

Gianelloni, Jr. discloses a bottom hole assembly flow control valve for a hydraulic motor comprising: a hydraulic motor having an element, rotor 14, or turbine shaft 7 that rotates at a speed in response to a power fluid defining the speed of the hydraulic motor; a valve 26 having a valve housing and a valve piston, the valve coupled to the hydraulic motor, the valve housing having a valve housing port 19, the valve piston having a valve piston port 25; the valve housing and valve piston moveable relative to one another and adapted to establish a bypass flow, through passage 19, when the valve housing and valve piston ports are at least partially aligned; an energizer or pump assembly 22, 23, 24 coupled to the valve and adapted to move the valve piston in response to the rotation of the element; the bypass flow of the working fluid through the housing and piston ports dependent on the speed of rotation of the element, the bypass flow reduced when the rotating element is below a predetermined speed of rotation, the bypass flow of the working fluid increased when the speed of rotation of the element is above the predetermined speed of rotation, the bypass flow proportional to the speed of rotation of the element up to a maximum bypass flow, and the bypass flow proportional to a degree of alignment between the housing and piston ports (col. 3, lines 60-69); the relative movement of the valve housing and the valve piston is axial; and a downhole drill bit.

The reference also discloses a method of controlling the rotation of a downhole tool, comprising: attaching a downhole tool to a hydraulic motor, the motor having a rotating element that rotates in response to a flow of power fluid; providing a flow control valve having a valve housing and a valve piston, the valve coupled to the hydraulic motor; the valve housing having a valve housing port; the valve piston having a valve piston port, the valve housing and valve piston moveable relative to one another and adapted to establish a bypass flow when the valve housing and valve piston ports are at least partially aligned; and a pump assembly coupled to the valve and adapted to move either the valve housing or the valve, piston in response to the speed of rotation of the rotating element such that the bypass flow of the working fluid through the housing and piston ports is dependent on the speed of rotation of the element; and injecting a flow of working fluid above the valve, the valve dividing the flow of working fluid flow between the flow of power fluid and the bypass flow proportional to the speed of rotation of the element; and providing a turbine having a turbine shaft that rotates at a speed in response to a flow of power fluid, and attaching the downhole tool to the turbine (col. 4, lines 12-65).

Claims 1-6, 16-21, and 26-31 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 3,194,325 to Gianelloni, Jr. ("Gianelloni"). Applicant requests that the Examiner reconsider and withdraw the above rejections in view of the following remarks.

Independent claim 1 contains limitations not disclosed, taught, or suggested by Gianelloni. Specifically, claim 1 requires a pump assembly coupled to a valve having valve

housing and a valve piston wherein the pump assembly is adapted to move either the valve housing or the valve piston in response to the rotation of an element of a hydraulic motor.

Gianelloni discloses a control valve consisting of a valve member and valve seat to control the flow of mud used to drive a turbine of a turbodrill. Gianelloni does not disclose, teach, or suggest a pump assembly coupled to the valve. Additionally, Gianelloni does not disclose, teach, or suggest a pump assembly that is adapted to move either the valve housing or valve piston in response to the rotation of an element of a hydraulic motor. Instead, Gianelloni discloses controlling the quantity of mud supplied to the turbine by the thrust applied to the drill bit. Specifically, when the drill pipe is not lowered at the same rate the drill bit is moving downhole, the valve member moves away from the seat allowing mud to begin to flow into a bypass passage. The farther away the valve member moves from the seat the more mud flows down the bypass instead of to the turbine. Alternatively, Gianelloni discloses using the torque produced during the drilling operation to control the quantity of mud flowing to the turbine. In either case, a pump assembly does not move the valve member in response to the rotation of an element of a hydraulic motor as required by claim 1.

For at least this reason, Applicants respectfully request that the Examiner reconsider and withdraw the § 102(b) rejection of independent claim 1. Claims 2–6 and 16 depend from claim 1 and thus, incorporate each limitation therein. Therefore, claims 2–6 and 16 are allowable for at least the same reasons as independent claim 1. Applicant therefore respectfully requests that the Examiner also reconsider and withdraw the rejection of claims 2–6 and 16.

Independent claim 17 contains limitations not disclosed, taught, or suggested by Gianelloni. Specifically, claim 17 requires a pump assembly coupled to a valve and adapted to selectively increase the bypass flow when the motor speed is above a predetermined speed and to

selectively decrease the bypass flow when the motor speed is below the predetermined speed. As discussed above, Gianelloni discloses a control valve consisting of a valve member and valve seat to control the flow of mud used to drive a turbine of a turbodrill. Applicants respectfully traverse the Examiner's assertion that bypass flow of the working fluid of Gianelloni is dependent on the speed of rotation of an element of the motor. In fact, Gianelloni expressly teaches that the quantity flow of mud reaching the turbine is not dependent upon the speed of the bit, but rather the flow of mud is dependent on either the thrust provided on the bit or the torque produced in the drilling operation. (Gianelloni, col. 4 ln. 1-15.)

For at least this reason, Applicants respectfully request that the Examiner reconsider and withdraw the § 102(b) rejection of independent claim 17. Claims 18-21 depend from claim 17 and thus, incorporate each limitation therein. Therefore, claims 18-21 are allowable for at least the same reasons as independent claim 17. Applicant therefore respectfully requests that the Examiner also reconsider and withdraw the rejection of claims 18-21.

Independent claim 26 contains limitations not disclosed, taught, or suggested by Gianelloni. Specifically, claim 26 requires a pump assembly coupled to a valve and adapted to move either a valve housing or valve piston in response to the speed of rotation of a rotating element of a hydraulic motor. As discussed above, Gianelloni expressly teaches that the quantity flow of mud reaching the turbine is not dependent upon the speed of rotation, but rather the flow of mud is dependent on either the thrust provided on the bit or the torque produced in the drilling operation.

For at least this reason, Applicants respectfully request that the Examiner reconsider and withdraw the § 102(b) rejection of independent claim 26. Claim 27 depends from claim 26 and thus, incorporates each limitation therein. Therefore, claim 27 is allowable for at least the same

reasons as independent claim 26. Applicant therefore respectfully requests that the Examiner also reconsider and withdraw the rejection of claim 27.

Independent claim 28 contains limitations not disclosed, taught, or suggested by Gianelloni. Specifically, claim 26 requires an energizer coupled to a valve and adapted to move either a valve housing or valve piston in response to the speed of a motor. As discussed above, Gianelloni expressly teaches that the quantity flow of mud reaching the turbine is not dependent upon the speed of the drilling bit, but rather the flow of mud is dependent on either the thrust provided on the bit or the torque produced in the drilling operation.

For at least this reason, Applicants respectfully request that the Examiner reconsider and withdraw the § 102(b) rejection of independent claim 28. Claims 29–31 depend from claim 28 and thus, incorporate each limitation therein. Therefore, claims 29–31 are allowable for at least the same reasons as independent claim 28. Applicant therefore respectfully requests that the Examiner also reconsider and withdraw the rejection of claims 29–31.

Although not cited by the examiner, the parent application to Gianelloni that issued as U.S. Patent no. 2,963,099 (“the ‘099 patent”) also does not disclose, teach, or suggest limitations of the present invention. For example, the ‘099 patent does not disclose, teach, or suggest a valve piston having a valve piston port as required by each independent claim. For at least this reason, the ‘099 patent does not anticipate the claimed invention.

C. Claim Objections - 35 USC § 103

The following is a quotation of 35 U.S.C. 1 03(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated

by the manner in which the invention was made.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gianelloni, Jr. in view of Head (6557642).

Gianelloni, Jr. discloses a bottom hole assembly for performing an operation downhole, comprising: a hydraulic motor or turbine that has an element or turbine shaft 14 that rotates in response to a flow of a power fluid defining the speed of the hydraulic motor; a downhole tool 8; and a control valve 26 for controlling the speed of the hydraulic motor by directing working fluid through the bottom hole assembly, the control valve coupled to the motor and having a valve housing 27 having a housing port, through seat 27; a valve piston having a valve piston port 25; the valve piston and valve housing being moveably connectable to one another and adapted to establish a bypass flow when the valve housing and valve piston ports are at least partially aligned; and a pump assembly coupled to the valve and adapted to selectively increase the bypass flow when the motor speed is above a predetermined speed and to selectively decrease the bypass flow when the motor speed is below the predetermined speed (col. 3, lines 60-69) but not a de-scaling unit.

Head teaches structure to create high flows is useful as a drilling tool or a descaling tool (col. 5, line 17).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the Giannelloni, Jr., structure for descaling, as taught by Head, since it is well known.

Claim 22 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Gianelloni in view of U.S. Patent 6,557,642 to Head ("Head"). Applicants request that the Examiner reconsider and withdraw the above rejections in view of the following remarks.

The fundamental basis for an obviousness determination under 35 U.S.C. §103(a) was set forth by the Supreme Court in *Graham v. John Deere Co.*, 383 US 1; 148 U.S.P.Q. 459 (1966). In subsequent cases involving a determination of obviousness under 35 U.S.C. §103, the Federal Circuit has noted that the following basic tenets of patent law must be adhered to: 1) the claimed invention must be considered as a whole; 2) the references must be considered as a whole and must suggest the desirability and, thus, the obviousness of making the combination; 3) the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and 4) reasonable expectation of success is the standard with which

obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 U.S.P.Q. 182, 187, n.5 (Fed. Cir. 1986). All of the claim limitations must be taught in order to establish obviousness. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

As discussed above, independent claims 17 contains limitations not disclosed, taught, or suggested by Gianelloni. Head also does not disclose, teach, or suggest a pump assembly coupled to a valve and adapted to selectively increase the bypass flow when the motor speed is above a predetermined speed and to selectively decrease the bypass flow when the motor speed is below the predetermined speed. Claim 22 depends from independent claim 17 and thus necessarily incorporates each limitation therein. Therefore, claim 22 is allowable for at least the same reasons as independent claim 17. Applicant therefore respectfully requests that the Examiner also reconsider and withdraw the rejection of claim 22.

C. ALLOWABLE SUBJECT MATTER

Claims 7-15, 23-25, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Examiner indicated that claims 7-15, 23-25, and 32 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant appreciates the Examiner's acknowledgement of allowable subject matter. However in light of the above remarks, Applicant respectfully requests that the Examiner indicate allowance of claims 7-14, 23-25, and 32 in the next paper from the office.

D. CONCLUSION

In view of the above amendment and remarks, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-6, 16-22, and 26-31 and that the Examiner indicate the allowance of all pending claims in the next paper from the Office. The Examiner is invited to contact the undersigned attorney to discuss any issues or questions presented by this paper.

Respectfully submitted,



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Date: January 31, 2006